Leukemia Cutis a Case Report: Rare Presentation of Acute Myeloid Leukemia in an 18-Year-Old Male

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Background & Pathophysiology

- Rare presentation of leukemia in which neoplastic leukocytes directly infiltrate the subcutaneous tissue, dermis, or epidermis
- Affects 2-30% of all leukemia patients,
  - Most commonly adult T cell leukemia/lymphoma (ATLL)
  - Chronic lymphocytic leukemia (CLL) or acute myeloid leukemia (AML) seen more frequently
- Risks: Genetic (chromosome 8, 3, t(6;9)), Environmental Exposures (benzene, ionizing radiation, all trans retinoic acid); More common in children (25-30% of all cases)
- Pathogenesis not well understood
  - Chemokine receptors interacting with cell adhesion molecules at post capillary venules
  - Sites of previous cellulitis or inflammation potentially increases risk

Presentation & Hospital Course

- 18-year-old male presented to the emergency department with concerns of a rapidly enlarging "lump" at his umbilicus
- CT imaging with soft tissue mass and surrounding edema, hepatosplenomegaly, and abdominal lymphadenopathy
- Laboratory workup notable for leukocytosis with blast predominance, anemia, thrombocytopenia, and coagulopathy
- Urgent surgical excision was performed given concern for necrotizing soft tissue infection
- Wound culture and blood culture positive for pseudomonas
- Surgical pathology showed atypical infiltration of myelomonocytic cells with focal MPO and CD68 positivity
- Subsequently underwent urgent bone marrow biopsy which showed predominance of myeloid blast cells consistent with AML

Discussion

- Development of lesions tends to be more rapid in acute leukemia and gradual with chronic leukemia
- No association between location of LC and subtype of leukemia
- Diagnosis requires biopsy and immunohistochemical analysis of cell surface molecules
- Treatment is based on specific type of leukemia, typically responsive to chemotherapy – cutaneous lesions typically regress with responsiveness to chemotherapy
- Heliacal Arc Radiotherapy of Total Skin (HEARTS) - whole body radiotherapy for refractory lesions

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